0004

C/007/041 Incoming
OK

WEST RIDGE RESOURCES, INC.

P.O. Box 910, East Carbon, Utah 84520
Telephone (435) 888-4000 Fax (435) 888-4002

Utah Division of Oil, Gas & Mining
Utah Coal Program
1594 West North Temple, Suite 1210
P.O.Box 145801
Salt Lake City, UT 84114-5801

January 20, 2009

Attn: Daron Haddock
Permit Supervisor

Re: West Ridge Mine C/007/041
Test Plot Evaluation
Soils Sampling/Monitoring

Dear Mr. Haddock:

Recently I sent to the Division three (3) copies of reports prepared by Mt. Nebo Scientific regarding the vegetation evaluation of the experimental test plot, and also the soils monitoring for sites T1, T2, and T3. Priscilla Burton suggested that these reports be incorporated into the MRP. Therefore, please find enclosed the CI and C2 forms for this addition.

If you have questions or comments please contact me at (435) 888-4017.

Sincerely,

David Shaver
Resident Agent

cc: Priscilla Burton

RECEIVED
JAN 21 2009
DIV. OF OIL, GAS & MINING

APPLICATION FOR PERMIT PROCESSING

Permit Change ☐	New Permit ☐	Renewal ☐	Transfer ☐	Exploration ☐	Bond Release ☐

Permit Number: C/007/041

Title of Proposal: Addition of reports on test plot evaluation and soils monitoring to the MRP

Mine: WEST RIDGE MINE

Permittee: **WEST RIDGE Resources, Inc.**

Description, include reason for application and timing required to implement:.

Instructions: *If you answer yes to any of the first 8 questions (gray), submit the application to the Salt Lake Office. Otherwise, you may submit it to your reclamation specialist.*

☐ Yes	☑ No	1. Change in the size of the Permit Area? _____ acres Disturbed Area? _____ acres ☐ increase ☐ decrease.
☐ Yes	☑ No	2. Is the application submitted as a result of a Division Order?
☐ Yes	☑ No	3. Does application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes	☑ No	4. Does application include operations in hydrologic basins other than as currently approved?
☐ Yes	☑ No	5. Does application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes	☑ No	6. Does the application require or include public notice/publication?
☐ Yes	☑ No	7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes	☑ No	8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes	☑ No	9. Is the application submitted as a result of a Violation?
☐ Yes	☑ No	10. Is the application submitted as a result of other laws or regulations or policies? Explain:
☐ Yes	☑ No	11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes	☑ No	12. Does the application require or include underground design or mine sequence and timing?
☑ Yes	☐ No	13. Does the application require or include collection and reporting of any baseline information?
☐ Yes	☑ No	14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☐ Yes	☑ No	15. Does application require or include soil removal, storage or placement?
☑ Yes	☐ No	16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes	☑ No	17. Does the application require or include construction, modification, or removal of surface facilities?
☐ Yes	☑ No	18. Does the application require or include water monitoring, sediment or drainage control measures?
☐ Yes	☑ No	19. Does the application require or include certified designs, maps, or calculations?
☐ Yes	☑ No	20. Does the application require or include subsidence control or monitoring?
☐ Yes	☑ No	21. Have reclamation costs for bonding been provided for?
☐ Yes	☑ No	22. Does application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes	☑ No	23. Does the application affect permits issued by other agencies or permits issued to other entities?

☐ **Attach _3_ complete copies of the application.**

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein (R645-301-123)

1/20/09
Signed - Name - Position - Date
agent

Subscribed and sworn to before me this 20th day of January, 2009.

Notary Public

My Commission Expires: April 6, 2009
Attest: STATE OF Utah
COUNTY OF Carbon

Notary Public
LINDA KERNS
345 N. 700 E.
Price, UT 84501
My Commission Expires
April, 6, 2009
State of Utah

Received by Oil, Gas & Mining

ASSIGNED TRACKING NUMBER

Application for Permit Processing
Detailed Schedule of Changes to the MRP

Title of Application: Addition of reports on test plot evaluation and soils minitoring to the MRP

Permit Number: C/007/041

Mine: WEST RIDGE MINE

Permittee: WEST RIDGE RESOURCES

Provide a detailed listing of all changes to the mining and reclamation plan which will be required as a result of this proposed permit application. Individually list all maps and drawings which are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise the existing mining and reclamation plan. Include page, section and drawing numbers as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
X ADD	☐ REPLACE	☐ REMOVE	Add test plot evaluation report and soils monitoring report to Appendix 2-6
☐ ADD	☐ REPLACE	☐ REMOVE	
☐ ADD	☐ REPLACE	☐ REMOVE	
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Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

MT NEBO SCIENTIFIC, INC.
research & consulting

January 16, 2009

Dave Shaver
ANDALEX RESOURCES
P.O. Box 902
Price, Utah 84501

Dear Dave:

Enclosed please find and electronic of the following report for the West Ridge Mine.

Vegetation of the
Experimental Test Plot
2008

at the
West Ridge Mine,
Carbon County, Utah

Please add the Test Plot Map to the final report when you make hard copies. Call if you have questions or comments.

Sincerely,

(Transmitted Electronically)

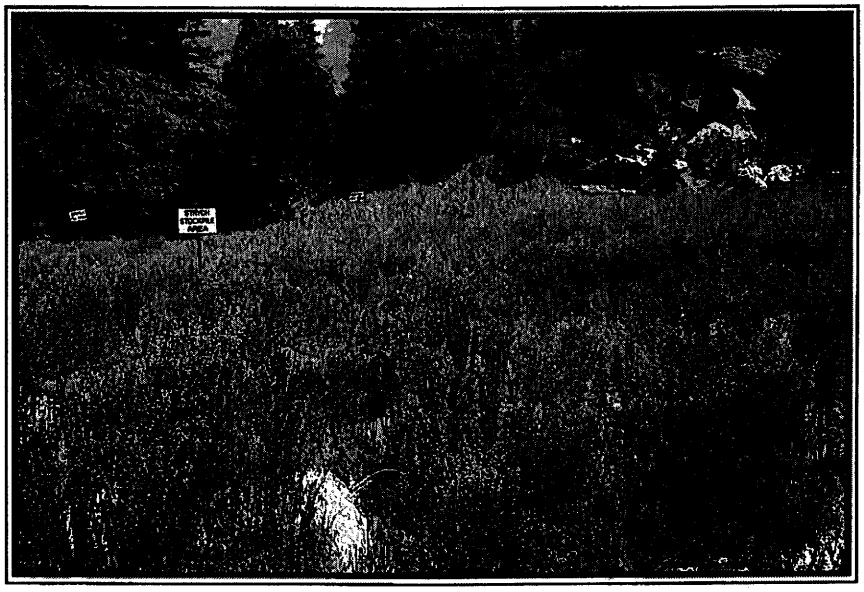
Patrick D. Collins, Ph.D.
Biologist/Environmental Consultant

Enclosures

330 East 400 South, Ste. 6, P.O. Box 337, Springville, Utah 84663
(801) 489-6937, (fax) 489-6779

Vegetation of the Experimental Test Plot 2008

at the
West Ridge Mine,
Carbon County, Utah



Experimental Test Plots at the West Ridge Mine

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
P.O. Box 337
Springville, Utah 84663
(801) 489-6937

Patrick D. Collins, Ph.D.

for

ANDALEX RESOURCES
Post Office Box 902
Price, Utah 84501

January 2009

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INTRODUCTION

Experimental Practice Test Plots were constructed at the West Ridge Mine in Carbon County, Utah in 1999. These plots were created to simulate final reclamation of those soils that have been left in-place (as opposed the more common practice to remove and stockpile them), covered by a geotextile layer (as a means for preservation of the in-place topsoil), identified with marker strips (to facilitate locating them at the time reclamation), then covered the area with fill (to simulate the material used to cover the mine pad areas during operations), and finally coverage of the plots with other topsoil material (was then seeded with the *interim* seed mixture for erosion control).

Five years following the initial test plot creation, the above procedures were reversed in an attempt to imitate final reclamation and revegetation of the mine site. Or, the fill and topsoil were removed until the marker strips were exposed. These materials were then returned to their place of origin. The geotextile material was then removed exposing the topsoil and subsoil that was left "in-place", followed by re-seeding the area with the seed mixture formulated for *final* revegetation.

This document was prepared to report the current status and condition of specific parameters for the vegetation of the Experimental Test Plots at the West Ridge Mine.

METHODS

Methodologies used for this study were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were recorded on August 15, 2008. The reference area proposed to ultimately be compared with this plot was sampled during the growing season of 1998. These data were also presented herein for an *early* or "preview" comparison of the datasets.

Sampling Design and Transect/Quadrat Placement

Transect lines for vegetation sampling were placed randomly within the boundaries of the test plots. The transect placement technique was employed with the goal to adequately sample a representative subset of the plot. Once the transects were established, quadrat locations for sampling were chosen using random numbers from the transect lines with the objective to record data without preconceived bias.

Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition, cover by species, and relative frequencies were also assessed from the

quadrats. Plant nomenclature follows "A Utah Flora" (Welsh et al., 2003).

Woody Species Density

Density of woody plant species was not sampled because very few or no trees or shrubs were present on the plots. In other words, no woody species were observed on the plots during the sample period.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been submitted with this report.

Raw Data

The raw data have been summarized on a spreadsheet and is available upon request by the operator or DOGM.

RESULTS

Midfork Cut

The Midfork Cut plot was mostly dominated by stinging nettle (*Urtica dioica*); other dominant plant species were thickspike wheatgrass (*Elymus lanceolatus*) and Lewis flax (*Linum lewisii*). For a list of all plant species by cover and frequency found in the test plot, refer to Table 1.

Table 1: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2008).

MIDFORK CUT	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Achillea millefolium	1.00	3.00	10.00
Linum lewisii	11.50	7.09	80.00
Urtica dioica	36.50	13.61	100.00
GRASSES			
Elymus lanceolatus	13.50	7.09	90.00
Elymus spicatus	4.50	7.23	30.00
Poa pratensis	8.50	6.34	70.00
Stipa hymenoides	1.00	3.00	10.00

Table 2: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2008).

MIDFORK CUT		
A. TOTAL COVER	**Mean Percent**	**Standard Deviation**
Total Living Cover	76.50	9.23
Litter	6.10	2.81
Bareground	8.80	5.98
Rock	8.60	4.86
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	63.19	13.76
Grasses	36.81	13.76

Total living cover of the plot was estimated at 76.50% (Table 2-A). The living cover was comprised of 63.19% forbs (mostly due to the stinging

nettle), 36.81% grasses with no shrubs present in the sample quadrats (Table 2-B).

Midfork Stockpile

The dominant plant species represented in this plot were thickspike wheatgrass and Lewis flax (Table 3).

Table 3: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2008).

MIDFORK STOCKPILE	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Hedysarum boreale	1.50	3.20	20.00
Linum lewisii	23.00	25.22	90.00
Urtica dioica	1.00	2.00	20.00
GRASSES			
Elymus lanceolatus	45.00	26.46	90.00
Elymus smithii	6.00	10.44	40.00
Poa pratensis	2.50	7.50	10.00

The total living cover for the Midfork Stockpile plot was estimated at 79.00% (Table 4-A). The composition of the living understory cover was comprised of 66.78% grasses and 33.22% forbs Table 4-B.) No woody species were present in the sample quadrats.

Table 4: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2008).

MIDFORK STOCKPILE A. TOTAL COVER	Mean Percent	Standard Deviation
Total Living Cover	79.00	11.14
Litter	9.20	5.47
Bareground	6.10	3.91
Rock	5.70	9.12
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	33.22	30.04
Grasses	66.78	30.04

Strych Stockpile

The Strych Stockpile plot was dominated by Lewis flax by quite a wide margin (Table 5). Other dominant species for this plot included bluebunch wheatgrass (*Elymus spicatus*) and thickspike wheatgrass.

Table 5: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2008).

STRYCH STOCKPILE	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Hedysarum boreale	0.50	1.50	10.00
Linum lewisii	43.00	13.08	100.00
Urtica dioica	1.00	3.00	10.00
GRASSES			
Bromus carinatus	2.50	4.03	30.00
Elymus lanceolatus	4.00	4.36	50.00
Elymus smithii	1.50	3.20	20.00
Elymus spicatus	9.00	7.35	70.00
Poa pratensis	2.00	4.00	10.00

The total living cover of the plot was estimated at 63.50% (Table 6-A); this cover consisted of 70.24% forbs and 29.76% grasses with no woody species present (Table 6-B).

Table 6: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2008).

STRYCH STOCKPILE		
A. TOTAL COVER	**Mean Percent**	**Standard Deviation**
Total Living Cover	63.50	10.26
Litter	8.50	3.20
Bareground	17.00	12.69
Rock	11.00	5.39
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	70.24	17.48
Grasses	29.76	17.48

Strych Fill

The Strych Fill plot's dominant plant species were Lewis flax and Western wheatgrass

(*Elymus smithii*), thickspike wheatgrass and bluebunch wheatgrass (Table 7).

Total living cover of the Strych Fill plot was estimated at 65.00% (Table 8-A). The living understory cover composition was comprised of 53.78% forbs and 46.22% grasses (Table 8-B).

Table 7: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2008).

STRYCH FILL	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Urtica dioica	4.50	7.89	30.00
Linum lewisii	31.50	15.50	100.00
GRASSES			
Elymus lanceolatus	9.00	10.20	60.00
Elymus smithii	10.00	10.95	50.00
Elymus spicatus	7.00	6.40	60.00
Poa pratensis	2.00	4.00	20.00
Stipa hymenoides	1.00	3.00	10.00

Table 8: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2008).

STRYCH FILL		
A. TOTAL COVER	**Mean Percent**	**Standard Deviation**
Total Living Cover	65.00	10.49
Litter	9.50	4.15
Bareground	13.00	7.14
Rock	12.50	6.80
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	53.78	18.52
Grasses	46.22	18.52

Douglas Fir/Maple Reference Area

The existing Douglas Fir/Maple Reference Area was chosen to ultimately be compared to the test plot. Although this is an early comparison considering the length of time the test plot has been "reclaimed" (re-worked), data from quantitative sampling this reference area in 1998 have been presented in this report. Moreover, when the final revegetation is compared to the representative reference area, the sampling will be accomplished during the same growing season.

Understory in the Douglas Fir/Maple Reference Area was dominated by bigtooth maple (*Acer grandidentatum)*, mountain lover (*Pachistima myrsinites)*, and Oregon grape (*Mahonia repens*). Overstory dominants were bigtooth maple and Douglas fir (*Pseudotsuga menziesii*). A list of all species present in the sample quadrats for the reference area is shown in Table 9.

The total living cover of the reference area was estimated at 63.63% of which overstory and understory cover was nearly equally represented at 31.38% and 32.25%, respectively (Table 10-A). Woody species comprised 61.57% of the total living understory cover, followed by forbs at 25.33% and grasses at 13.11% (Table 10-B).

Table 9. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Frequency by Species (1998).

DOUGLAS FIR/ MAPLE COMMUNITY REFERENCE AREA (NEW)	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY COVER			
Acer grandidentatum	15.88	21.30	50.00
Juniperus scopulorum	1.38	6.22	5.00
Pseudotsuga menziesii	14.13	20.67	45.00
UNDERSTORY COVER			
TREES & SHRUBS			
Acer grandidentatum	6.18	11.30	47.50
Juniperus scopulorum	1.30	2.90	20.00
Mahonia repens	3.33	5.82	40.00
Pachistima myrsinites	5.73	11.04	35.00
Pseudotsuga menziesii	1.95	6.19	6.00
Symphoricarpos oreophilus	1.43	3.35	20.00
FORBS			
Antennaria parvifolia	0.25	1.09	5.00
Artemisia dracunculus	0.88	3.33	10.00
Aster sp.	3.13	7.65	30.00
Circium sp.	0.13	0.78	2.50
Descurania pinnata	1.78	7.12	10.00
Erigeron engelmannii	0.25	1.09	5.00
Erysimum asperum	0.13	0.78	2.50
Fragaria vesca	0.38	1.73	5.00
Mitella stauropetala	0.05	0.31	2.50
Senecio pudicus	0.15	0.79	5.00
Smilacina racemosa	0.33	1.03	10.00
Stellaria jamesiana	0.03	0.16	2.50
Taraxicum officinale	0.13	0.78	2.50
Thalictrum fendleri	0.13	0.78	2.50
Viola adunca	0.13	0.78	2.50
GRASSES			
Bromus inermis	1.25	5.67	7.50
Poa fendleriana	2.90	4.15	45.00
Poa pratensis	0.38	1.73	5.00

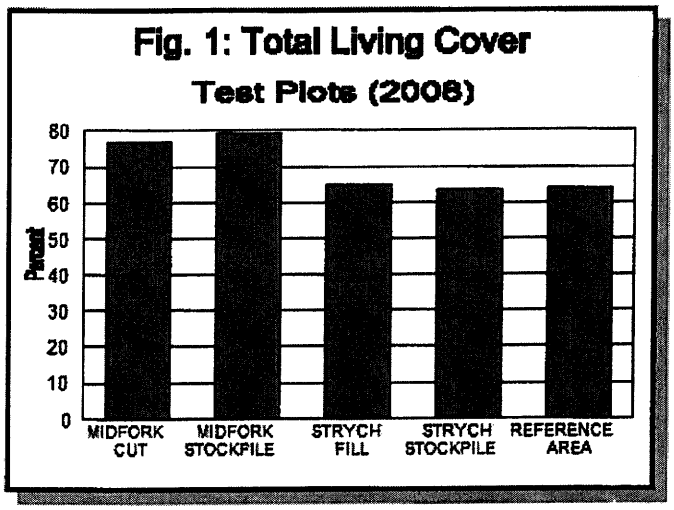
Table 10. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Sample Size (1998).

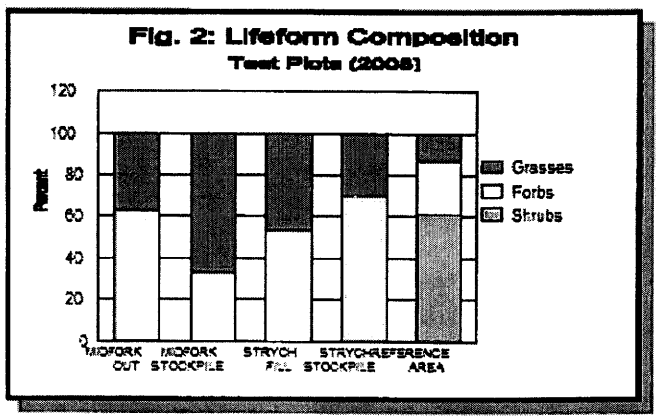
DOUGLAS FIR/ MAPLE COMMUNITY REFERENCE AREA (NEW)	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory Cover (O)	31.38	25.69	40
Understory Cover (U)	32.25	19.27	40
Cryptogams	0.25	1.09	40
Litter	18.20	12.80	40
Bareground	8.20	9.39	40
Rock	9.73	9.67	40
O+U	63.63	13.51	40
B. % COMPOSITION			
Trees & Shrubs	61.57	33.67	40
Forbs	25.33	29.49	40
Grasses	13.11	19.14	40

DISCUSSION

When one compares *species diversity* in the summary tables for each plot, there does not seem to be a significant difference between them. Species diversity, however, is much greater in the reference area. One interesting note is the prevalence of stinging nettle in the Midfork Cut plot. Although not necessarily and undesirable species, it is interesting that it dominates that plot only. The Midfork Cut plot may have greater soil moisture for one reason or another, which may influence the persistence of this plant.

A graphic representation of the *total living cover* can be observed on Fig 1. As can be noted from the figure and also the data summary tables in this report, there was very little difference between the total living cover in the plots that represented soils that remained *in-place* to those that represented soils of the more typical scenario of first *stockpiling* the topsoil and then returning it at the time of revegetation.

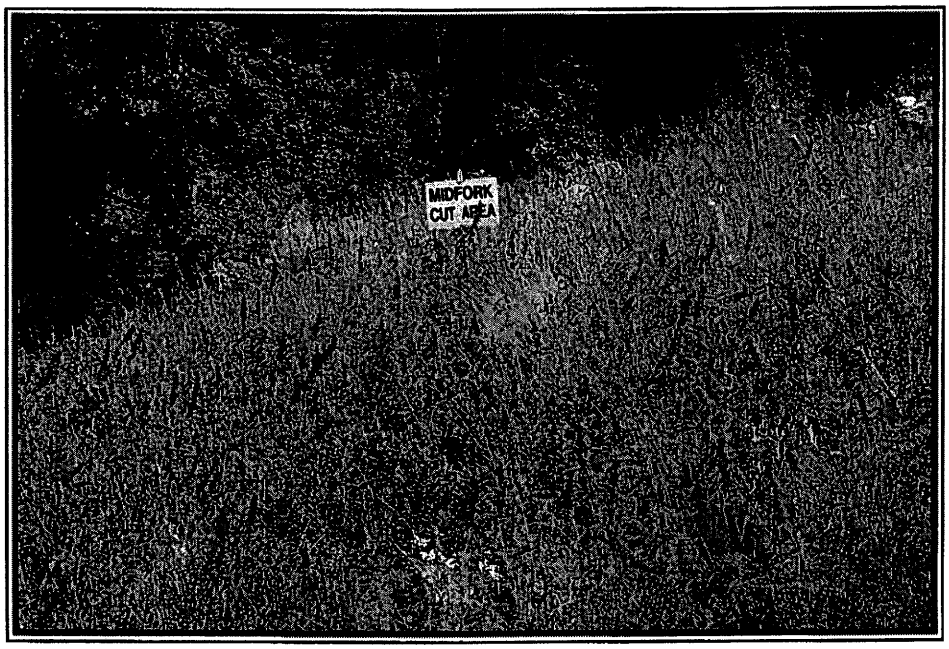




For lifeform composition, the most obvious observation is that there were no woody species present in the test plots, especially when the reference area is compared (Fig. 2). This may change over time when the plots become more established.

COLOR PHOTOGRAPHS OF THE SAMPLE AREAS

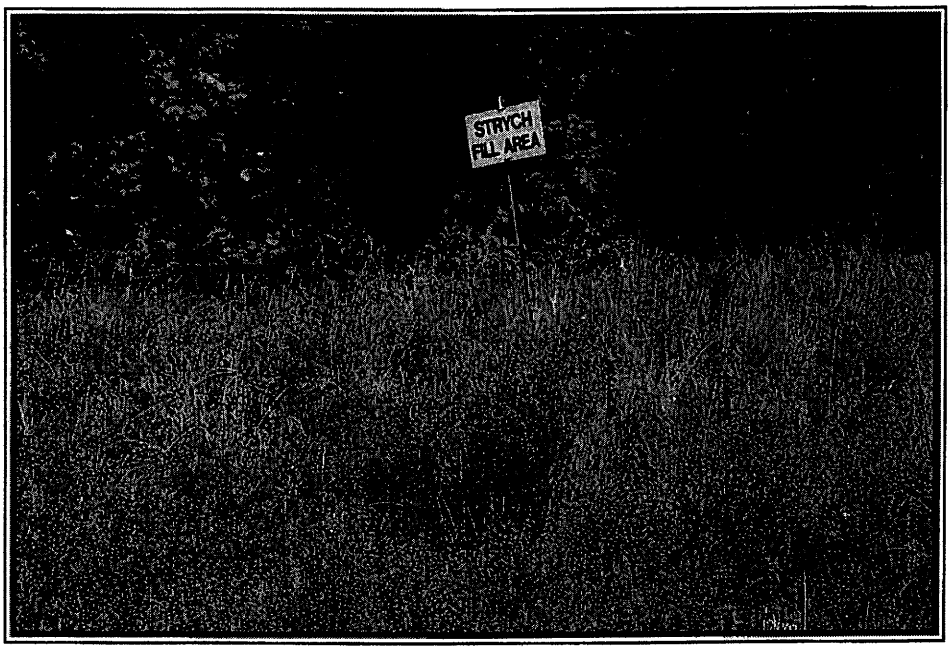
All Experimental Test Plots at the West Ridge Mine



Midfork Cut Test Plot

Midfork Stockpile Test Plot

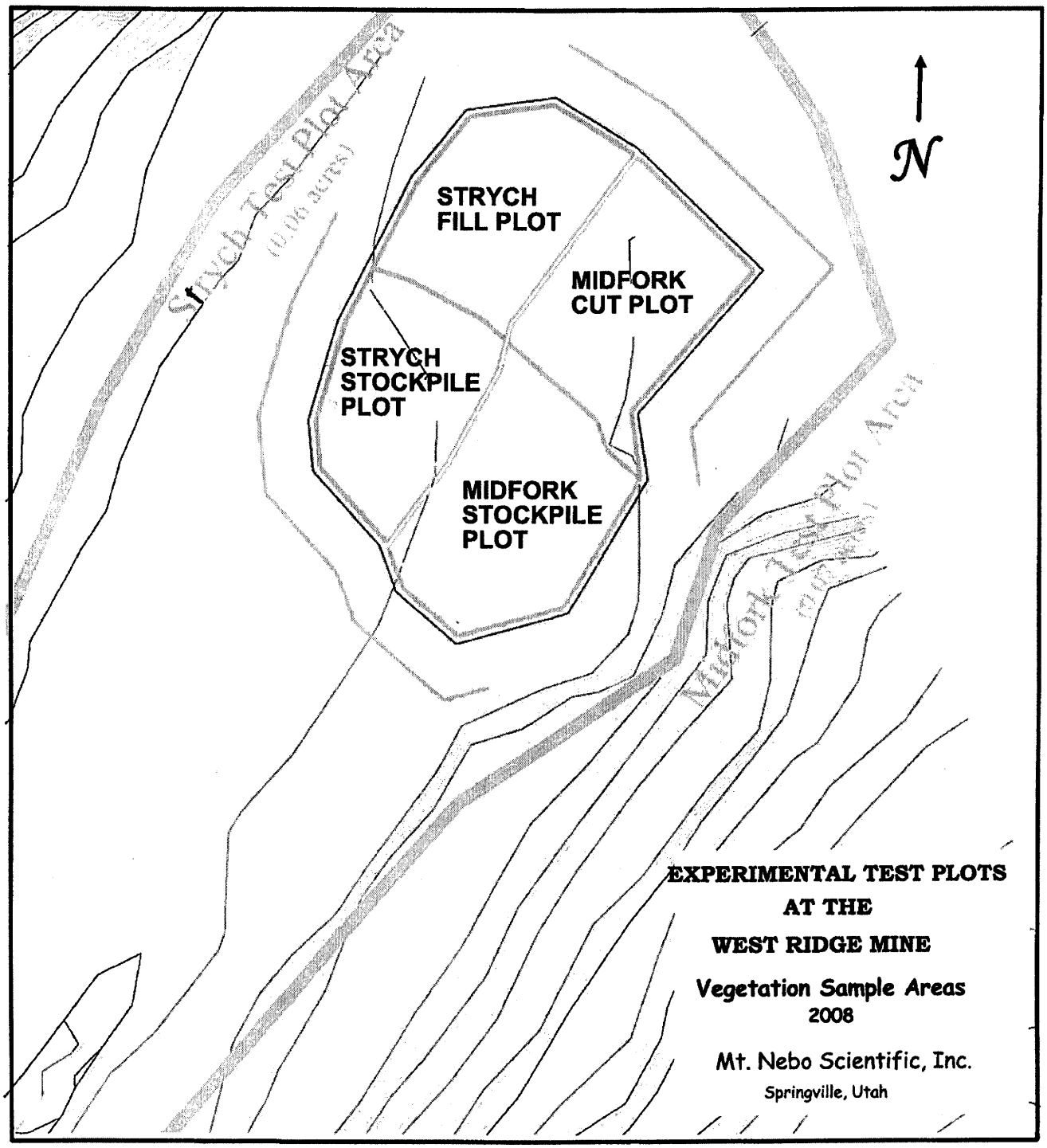
Strych Stockpile Test Plot



Strych Fill Test Plot

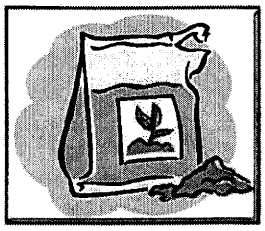

Douglas Fir/Maple Reference Area

TEST PLOT MAP


Strych Test Plot Area
(0.06 acres)
STRYCH
FILL PLOT
MIDFORK
CUT PLOT
STRYCH
STOCKPILE
PLOT
MIDFORK
STOCKPILE
PLOT
Midfork Test Plot Area
(0.07 acres)
N
EXPERIMENTAL TEST PLOTS
AT THE
WEST RIDGE MINE
Vegetation Sample Areas
2008
Mt. Nebo Scientific, Inc.
Springville, Utah

SOIL MONITORING
at the
WEST RIDGE MINE, UTAH
2008

Prepared
for
WEST RIDGE RESOURCES, INC.



Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
Springville, Utah 84663
(801) 489-6937

Patrick D. Collins, Ph.D.

for

WEST RIDGE RESOURCES, INC.
West Ridge Mine
P.O. Box 1077
Price, Utah 84501

January 9, 2009

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INTRODUCTION

An "experimental practice" for the protection of soil resources was designed and implemented at the West Ridge Mine site. The experimental practice was designed to test the effectiveness of burying soils in-place rather than salvaging (removing) them and returning them at the time of final reclamation. The in-situ topsoil was covered with a geotextile material and layer markers followed by fill material to create working areas for surface operations of the mine.

As a method to monitor the buried soil resources, West Ridge Resources committed to sampling **mine pad areas** in specific locations to determine whether or not they are being affected by coal and surface operations. In the document called *West Ridge Mine Experimental Practice Annual Evaluation 2000: Addendum to Appendix 2-6*, page 4, it states that a monitoring program, starting in the year 2000, will be implemented to sample and determine if the mine pad areas affected by the coal are being "acidified". The same document states that the samples will be analyzed for acid/toxic-forming potential per Division Guidelines. In consulting with soils specialist, Priscilla Burton, from the State of Utah, Division of Oil, Gas & Mining (DOGM) prior to sampling in 2001, it was determined that the most appropriate parameters to be analyzed on the mine pad areas were: pH, electrical conductivity (EC), sodium adsorption ratio (SAR) and calcium carbonate ($CaCO_3$). Moreover, it was determined that sampling should be done at the depth of 6-12 inches as opposed to 3 inches as stated in the addendum cited above.

METHODS

Soil samples of the mine pad areas were taken at the West Ridge Mine site in specified locations on that ill-fated day in history, September 11, 2001 and again November 25, 2008. The approximate same locations were sampled both years and are shown in Figure 1. A brief description of these locations follow.

T1	*Located in the right fork, it was originally described to be 64 ft northwest of the Jersey Barrier in the center of the canyon. Because this location was so close to construction and where equipment was placed at the time, the sample was taken about 25 ft north of that location.*
T2	*Located in the left fork in the coal storage area, the sample was taken at the base of the dike in the center of the canyon.*
T3	*Located in the load-out area, the sample was taken 54 ft uphill from the belt footer on the north side of the ditch.*

The soil samples were taken at a depths from 6 to 12 inches at the above-described locations. Soils were analyzed at the Brigham Young University, Soil and Plant Analysis Laboratory, Provo, Utah. Parameters and laboratory methods used are shown below.

pH	*ASA Mono. No. 9, Part 2, (2 ed), 1982. Method 10-3.2, page 171. Perform pH on saturated paste.*
ECe	*Electrical conductivity reported as mmhos/cm 25°C. ASA Mono. No. 9, Part 2, (2 ed), 1982. Method 10-3.3, page 172-173.*
SAR	*Sodium Adsorption Ratio. Calculated from soluble Ca, Mg and Na.*
$CaCO_3$	*Method S-13.20. Acetic acid dissolution method. Western States Laboratory Proficiency Testing Program. Soil and Plant Analytical Methods. 1998.*

Soil sampling in the **Experimental Test Plots** was also conducted by Gary Gray, P.E. from West Ridge Resources in the fall of 2005.

RESULTS

The laboratory results for soils in the **pad areas** are shown on Table 1. The entire lab report has been included in the Appendix of this report. The only values that exceeded acceptable levels according to DOGM soil guidelines were from 2008 samples. The parameters that exceeded the standards were EC and SAR in sample T3. The results suggest accumulations of salts in this area. Sample T3 was located in-between the driving loop created in the coal loadout area of the West Ridge Mine site. The high concentration of salts (EC and SAR) may likely be the result of road salt that is placed in the travel areas at the mine to treat snow and ice. The road salts also accumulate in the snow and on the coal trucks while using the haul road to and from the mine. This snow and salt can drop off the trucks while idling at the loadout site. Additionally, "acidification" of the soils will probably not be a problem due to the neutralizing or "buffering" effect caused by the high percentage of calcium carbonates ($CaCO_3$) present in all samples.

Table 1: Laboratory Results for Soil Sampling in Mine Pad Areas at West Ridge Mine (2001 & 2008).

	pH		EC		SAR		$CaCO_3$	
Sample No.	**2001**	**2008**	**2001**	**2008**	**2001**	**2008**	**2001**	**2008**
T1	8.04	7.75	6.20	4.80	2.19	5.83	19.21	11.85
T2	7.52	7.23	2.70	4.80	0.74	4.14	5.10	11.25
T3	7.83	8.42	4.20	17.50*	1.94	31.31*	15.00	12.02
Mean	7.80	7.80	4.37	9.03	1.62	13.76	13.10	11.71
SDev.	0.26	0.60	1.76	7.33	0.78	15.22	7.24	0.40

** Value considered "unsuitable" according evaluation in DOGM soil guidelines.*

As a means for comparison, Table 2 shows results of soil sampling in the **Experimental Test Plots** at the West Ridge Mine in 2005. These plots were created to simulate final reclamation of those soils that were left in-place, covered by a geotextile layer, marked with strips, then covered with fill material for the life of the mine. At the time of final reclamation the geotextile fabric, markers and fill will be removed thus exposing the native soils enabling revegetation to proceed. A similar process to test this reclamation design was implemented in the Experimental Test Plot area by placing material over existing soils, then later removing it, followed by revegetation techniques.

Table 2: Laboratory Results for Soil Sampling in Experimental Test Plot at West Ridge Mine (2005).*

	pH	EC	SAR	$CaCO_3$
Subplot Name				
Strych Fill	7.31	1.06	0.17	19.47
Strych Stockpile	7.62	0.77	0.34	20.25
Midfork Cut	7.27	0.98	0.13	16.00
Midfork Stockpile	7.39	0.90	0.19	10.83
Mean	7.40	0.93	0.21	16.64
SDev.	0.16	0.12	0.09	4.29

** Results are a subset showing specific parameters from the complete soil laboratory report prepared by Brigham Young University (October 4, 2005). Sampling was conducted by Gary Gray, P.E. from the West Ridge Mine. A complete copy of the lab report has been provided to DOGM.*

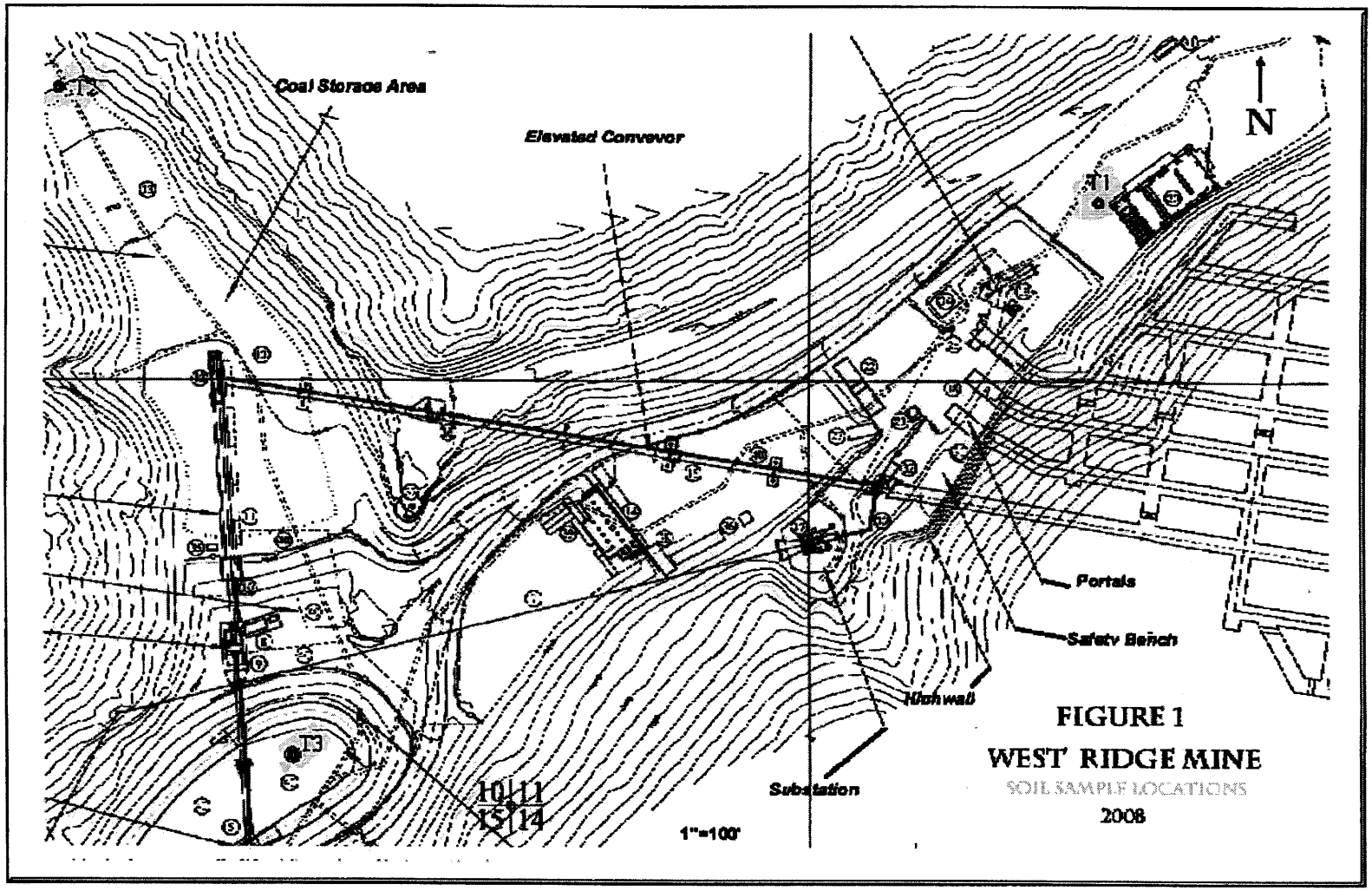

FIGURE 1

WEST RIDGE MINE

SOIL SAMPLE LOCATIONS

2008

APPENDIX

(Laboratory Report)

BRIGHAM YOUNG UNIVERSITY

Soil and Plant Analysis Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Animal Science Department

Name Mt. Nebo Scientific
Street P.O. Box 337
Springville UT 84663
City State Zip

SOIL TEST REPORT AND RECOMMENDATIONS

Date: 12-Jan-09
Telephone: 8014896937
Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
WR T1 6-12"	Turf	7.75						

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Salinity-ECe dS/m	4.80				X		salinity a problem for sensitive crops
SAR-Sodium Absorption Ratio	5.83		X				no sodium hazard
Calcium-SAR ppm Ca	196.32						
Magnesium SAR ppm Mg	261.12						
Sodium SAR ppm Na	532.48						
Ca Carbonate %CaCO3	11.85						

Notes:

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Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
WR T2 6-12"	Turf	7.23						

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Salinity-ECe dS/m	4.80				X		salinity a problem for sensitive crops
SAR-Sodium Absorption Ratio	4.14		X				no sodium hazard
Calcium-SAR ppm Ca	373.76						
Magnesium SAR ppm Mg	284.16						
Sodium SAR ppm Na	437.76						
Ca Carbonate %CaCO3	11.25						

Notes:

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Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
WR T3 6-12"	Turf	8.42						

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Salinity-ECe dS/m	17.50					X	salinity a problem for most crops
SAR-Sodium Absorption Ratio	31.31					X	extreme sodium hazard exists
Calcium-SAR ppm Ca	337.92						
Magnesium SAR ppm Mg	358.40						
Sodium SAR ppm Na	3481.60						
Ca Carbonate %CaCO3	12.02						

Notes: